

(i.e., light signals) by optical-to-electrical circuitry **74**. The optical signals are communicated to the display housing through one or more optical fibers **76**. The output of the optical fiber is translated back to an electrical signal by optical-to-electrical circuitry **78**. The output of the optical-to-electrical circuitry **78** is sent to circuitry in the display housing **38**, such as the display panel.

In the preferred embodiment, to prevent damage to the optical fiber, or bundle of optical fibers, the fiber or fibers are aligned through the with a gradual torsion, rather than being bent, to prevent damage to the fibers as the notebook is opened and closed.

If data is also passed from the display housing **38** to the main housing **36**, electrical-to-optical circuitry could also be placed in the display housing **38** and optical-to-electrical circuitry could be placed in the main housing **36**.

While the present invention has been discussed in relation to a main housing and a display housing in a notebook computer, it could be used in any electronic device where high bandwidth communication is performed between two housings.

The present invention provides significant advantages over the prior art. Because the hinge itself is able to carry the signals between the first and second housings, the cable between the first and second housings can be eliminated or, at least, reduced in size. By using a photoelectric cell to transmit signals through the first hinge members and photosensitive receivers to receive the light signal through the first hinge members, EMI can be greatly reduced.

Although the Detailed Description of the invention has been directed to certain exemplary embodiments, various modifications of these embodiments, as well as alternative embodiments, will be suggested to those skilled in the art. The invention encompasses any modifications or alternative embodiments that fall within the scope of the claims.

What is claimed is:

1. An electronic device comprising:

a first housing for containing a first circuit;
a second housing for containing a second circuit; and
a hinge coupling said first and second housings, comprising:

first hinge pieces coupled to said first circuit; and
second hinge pieces rotatably coupled to respective ones of said first hinge pieces and coupled to said second circuit, respective pairs of said first and second hinge pieces operable to transmit a signal from said first circuit to said second circuit.

2. The electronic device of claim **1** wherein said first and second hinge pieces conduct light signals.

3. The electronic device of claim **2** wherein said hinge further comprises photoelectric devices associated with each of said first hinge pieces and disposed in said first housing for generating a light signal responsive to an electrical signal from said first circuit.

4. The electronic device of claim **3** wherein said hinge further comprises photosensitive devices associated with each said second hinge pieces and disposed in said second housing for generating an electrical signal responsive to receiving a light signal through said first and second hinge pieces.

5. The electronic device of claim **4** wherein said hinge further comprising third and fourth hinge pieces for transmitting an electrical signal, said third and fourth hinge pieces rotatably coupled together.

6. The electronic device of claim **2** wherein said first and second hinge pieces are formed of an acrylic material.

7. The electronic device of claim **1** wherein said first and second hinge pieces conduct electrical signals.

8. The electronic device of claim **7** wherein said first and second hinge members conduct power signals.

9. A method of transmitting signals between a first circuit in a first housing and a second circuit in a second housing comprising the steps of:

applying signals from said first circuitry to one or more first hinge pieces of a hinge coupling said first housing to said second housing; and

receiving signals applied to said first hinge pieces at respective second hinge pieces rotatably mounted to said first hinge pieces and coupled to said second circuitry.

10. The method of claim **9** wherein said applying step comprises the steps of:

translating signals from said first circuit to light signals; and

emitting said light signals to said first hinge pieces.

11. The method of claim **10** wherein said receiving step comprises the step of translating light signals into electrical signals.

12. The method of claim **9** wherein said applying step comprises the step of applying electrical signals to said first hinge pieces.

13. An electronic device comprising:

a first housing for containing a first circuit;
a second housing for containing a second circuit; and
a hinge coupling said first and second housings, comprising:
first hinge pieces coupled to said first circuit; and
second hinge pieces rotatably coupled to respective ones of said first hinge pieces and coupled to said second circuit, said first and second hinge pieces operable to transmit signals from said first circuit to said second circuit.

14. The electronic device of claim **13** wherein said first hinge pieces are electrically coupled to said first circuit and said second hinge pieces are electrically coupled to said second circuit.

15. The electronic device of claim **13** wherein said first and second hinge pieces conduct light signals.

16. The electronic device of claim **15** wherein said hinge further comprises photoelectric devices associated with each of said first hinge pieces and disposed in said first housing for generating a light signal responsive to an electrical signal from said first circuit.

17. The electronic device of claim **16** wherein said hinge further comprises photosensitive devices associated with each said second hinge pieces and disposed in said second housing for generating an electrical signal responsive to receiving a light signal through said first and second hinge pieces.

18. The electronic device of claim **17** wherein said hinge further comprising third and fourth hinge pieces for transmitting and electrical signal, said third and fourth hinge pieces rotatably coupled together.

19. The electronic device of claim **14** wherein said first and second hinge pieces are formed of an acrylic material.

20. The electronic device of claim **13** wherein said first and second hinge pieces conduct electrical signals.